REMARKS

Applicants intend this response to be a complete response to the Examiner's **20 July 2006** Final Office Action. Applicants have numbered the paragraphs in their response to correspond to the paragraph numbering in the Office Action for the convenience of the Examiner. Please note that related paragraphs are combined in paragraph number ranges, *e.g.*, 2-3.

DETAILED ACTION

Status of Claims

1. Amended claims 1-2 and 15 have been entered and claims 11-13 and 17-24 have been cancelled. Claims 3-7 are withdrawn. Claims 1, 2, 8-10, 14-16, and 25-27 are pending. It is noted that claims 8, 10, and 16 have been mislabeled "currently presented." This label should be changed to "previously presented."

Applicant acknowledges the claim status.

Claim Rejections - 35 USC § 102

2. **Claims 1, 8-10, and 14** stand rejected under 35 U.S.C. 102(b) as being anticipated by Abrahamson et al. (US Patent No. 3,520,071).

The Examiner contends as follows:

> Abrahamson discloses an apparatus for simulating a pulse and correlated heart beat of an animal, the apparatus comprising a playback device for generating a first electronic signal corresponding to a pulse (col. 3, line 73) and a second electronic signal corresponding to a correlated heart beat (col. 3, line 73), a tactile pulse simulator for receiving the pulse signal and generating a pressure pulses simulating an arterial pulse discernible by touch (col. 8, lines 39-44, lines 48-52) and an audio simulator for receiving the correlated heart beat signal (col. 9, lines 40-45) and recreating the heart beat to be heard through a stethoscope (col. 4, lines 8-9).
>
> Regarding claim 8, Abrahamson discloses that the tactile pulse simulator comprises a collapsible tube apparatus (col. 8, lines 39-47).
>
> Regarding claim 9, Abrahamson discloses that the tactile pulse simulator and the audio simulator are housed within a housing (col. 6, lines 10-11; col. 9, lines 72-74).
>
> Regarding claim 10, Abrahamson discloses that the tactile pulse simulator comprises a resilient cover covering a tactile switch capable of generating pulses simulating the arterial pulse (col. 9, lines 57-72).
>
> Regarding claim 14, Abrahamson discloses that the tactile pulse simulator is within a first housing (193) and the audio simulator is within a second housing (190) (Figure 12).

Abrahamson does not include correlated heart sounds and pulses that are based on recording of living animals. Abrahamson does not correlate the heart sounds and pulses as Abrahamson has

provided that the pulses and heart beat to be non-correlated and independently controlled. Such independently controlled outputs are in no way correlated, as is clear from the following quotes:

> In addition, the dials for overriding certain conditions and either in-creasing or decreasing the readings of blood pressure, pulse rate, respiration rate and jaw tension are also listed on FIG. 2 and shown in their position on the instructor's console 200 in FIG. 3.

US3520071 at Col. 3, ll. 44-50.

> (J) Carotid and temporal pulsing is presented by means of flattened, sealed vinyl tubes 175. The two systems (carotid and temporal) are manifold connected to permit each pulse system independent operation. Rate and amplitude variations are effectively developed through use of an electro-pneumatic transducer which receives signals from the heart-sound generator of FIG. 10. The generation of that signal will be described in connection with further discussion of FIG. 10.

US3520071 at Col. 8, ll. 41-47.

> The means for generating the heart sound through the transducer **180** whose tubular outlet is located in the left chest area is shown in block diagram form in FIG. 10. The heart sound is simulated by properly modulating the amplitude of a fixed frequency oscillator **181.** The amplitude profile of the heart sound is obtained by adjusting the function generator 182. The output of the function generator 182 and the output of the oscillator 181 will be fed to the modulator **183.** The modulator 183 output will thus be of fixed amplitude and have the proper sound characteristics. Signal amplitude will be kept under computer **300** control by feeding the control signal from computer 300 and the modulator 183 signal to the electronic multiplier 184.
>
> The heart rate is computer controlled in the following way. The rate signal from computer **300** controls the frequency of a voltage controlled oscillator 185. The out-put of oscillator 185 drives a one-shot multivibrator 186, whose output is shaped to appropriately drive the function generator 182 by the ramp generator 187. Arrhythmias may be simulated by generating appropriate extra or missing heart beats in the arrhythmia generator **188,** which is turned on and off at the correct times by a control signal from computer **300.** The output of the one-shot multivibrator **186** is also used to drive the pulse mechanism in the manikin **100** to insure synchronism. In addition, it provides a synchronization signal to the sound generator for the sphygmomanometer.

US3520071 at Col. 9, ll. 4-32.

> The generator which is used in driving the brachial-artery sound source is selected by comparatives within the computer **300.** If the cuff pressure in pressure cuff 193 shown in the sphygmomanometer instrument arrangement on the manikin's right arm 102, as shown in FIG. 12, is above diastolic but below systolic, a comparator will select the spurting pulse generator 192. When the cuff pressure reaches or exceeds systolic, both sound generators 191 and 192 are disconnected.

US3520071 at Col. 9, ll. 46-54.

Although the sounds can be synchronized, the device was designed to insure separate functioning. Thus, it is obvious from the above quotes that the pulse and heart rates are not meant to be correlated and certainly not derived from recorded heart beat sound and pulses from living animal including humans. The generators used in Abrahamson are generated from a fixed frequency that is properly modulated. Such simulated heart sounds and pulses are known not to realistically reproduce actual recording of correlated living animals.

Moreover, Abrahamson does not include pulses simulators that are not directly tied to the operation of pneumatic devices that generate overtone sounds or Abrahamson discloses pulse simulators that are directly tied to a blood pressure device so that the generators stop once the blood pressure simulation is stopped.

Because Abrahamson does not disclose correlated heart and pulse sounds derived from recording of living animals, Abrahamson does not anticipate the claims of this invention. Applicant, therefore, respectfully requests withdrawal of this rejection.

Claim Rejections - 35 USC § 103

3. **Claims 2 and 16** stand rejected under 35 U.S.C. 103(a) as being unpatentable over Abrahamson in view of Takashina et al. (US Patent No. 6,461,165).

The Examiner contends as follows:

> Abrahamson discloses an apparatus for simulating a right side pulse and correlated heart beat of an animal, the apparatus comprising a playback device for generating a first electronic signal corresponding to the right side pulse and a second electronic signal corresponding to a correlated heart beat (col. 3, line 73; col. 9, lines 57-72), a tactile pulse simulator for receiving the right pulse signal and generating a pressure pulses simulating a right side arterial pulse discernible by touch (col. 8, lines 39-44, lines 48-52), and an audio simulator for receiving the correlated heartbeat signal (col. 9, lines 40-45) and recreating the heartbeat to be heard through a stethoscope (col. 4, lines 8-9).
>
> Abrahamson does not disclose the simulation of a left side pulse along with an electronic signal corresponding to the left side pulse and a tactile pulse simulator for receiving the left pulse signal and generating a pressure pulses simulating a left side arterial pulse discernible by touch. However, Takashina teaches the placement of electric pulse generators (col. 1, lines 63-67) on both sides of the body, more specifically both arms (Figure 2, items 5, 6, 7, and 8). It would have been obvious to one of ordinary skill in the art at the time of invention to place the structure described by Abrahamson on both sides of a manikin as taught by Takashina to create a complete simulation, as opposed to a half-body simulation, of the human heart beat and pulse.

Regarding claim 16, Abrahamson discloses that the tactile pulse simulator comprises a collapsible tube apparatus (col. 8, lines 39-47).

The combination of Abrahamson and Takashina does not disclose, teach or suggest the use of corrected heart and pulse sounds from recording of living animals. It is the use of recording from living animals (living humans) that permits the sound generator for the heart sounds and the tactile generators for touch to be correlated in such a way that the medical student is exposed to real normal and abnormal heart sound and arterial pulses. Thus, the combination of Abrahamson and Takashina does not render obvious the present claims. Applicant, therefore, respectfully requests withdrawal of this rejection.

4. **Claims 15** stands rejected under 35 U.S.C. 103(a) as being unpatentable over Abrahamson in view of Takashina, further in view of Elwell (US Patent No. 3,298,132).

The Examiner contends as follows:

> Abrahamson discloses that the tactile pulse simulator comprises a resilient cover covering a tactile switch capable of generating pulses simulating the arterial pulse (col. 9, lines 57-72). Abrahamson does not expressly disclose that the first housing simulates a human wrist or that the tactile pulse simulator is located at a position in the wrist corresponding to a position in the patient where the arterial pulse is detected and monitored. However, Takashina teaches that the pulse generators can be located at the brachial artery or radial artery positions (col. 4, lines 63-67). It would have been obvious to one of ordinary skill in the art at the time of invention to place the pulse generator at the wrist in order to simulate the pulse at a position on the human body where it is commonly know that the pulse is easy to detect.

The combination of Abrahamson, Takashina and Elwell does not disclose, teach or suggest the use of corrected heart and pulse sounds from recording of living animals. It is the use of recording from living animals (living humans) that permits the sound generator for the heart sounds and the tactile generators for touch to be correlated in such a way that the medical student is exposed to real normal and abnormal heart sound and arterial pulses. Thus, the combination of Abrahamson, Takashina and Elwell does not render obvious the present claims. Applicant, therefore, respectfully requests withdrawal of this rejection.

5. **Claims 25-27** stand rejected under 35 U.S.C. 103(a) as being unpatentable over Abrahamson in view of Takashina.

The Examiner contends as follows:

Abrahamson discloses an apparatus for simulating a pulse and correlated heart beat of a human, the apparatus comprising a playback device for generating an electronic signal corresponding to the right side pulse and a second electronic signal corresponding to a correlated heart beat (col. 3, line 73; col. 9, lines 57-72); a first housing including a first tactile pulse simulator for receiving the right side arterial pulse signal and generating a pressure pulses corresponding to a right arm arterial pulse discernible by touch (col. 8, lines 39-44, lines 48-52); and a second housing including an audio simulator for receiving the heart beat signal and generating an audible recreation of the correlated heartbeat (col. 9, lines 40-45) and designed to be heard through a stethoscope position on a surface of the housing (col. 4, lines 8-9).

Abrahamson does not disclose a second electronic signal corresponding to the left side pulse and an additional housing including a second tactile pulse simulator for receiving the left side arterial pulse signal and generating a pressure pulses corresponding to a left arm arterial pulse discernible by touch. However, Takashina teaches the placement of electric pulse generators (col. 1, lines 63-67) on both sides of the body, more specifically both arms (Figure 2, items 5, 6, 7, and 8). It would have been obvious to one of ordinary skill in the art at the time of invention to place the structure described by Abrahamson on both sides of a manikin as taught by Takashina to create a complete simulation, as opposed to a half-body simulation, of the human heart beat and pulse.

Regarding claim 26, Abrahamson, as modified by Takashina, discloses that the tactile pulse simulator comprises a collapsible tube apparatus (col. 8, lines 39-47).

Regarding claim 27, Abrahamson, as modified by Takashina and Elwell, discloses that the tactile pulse simulators comprise a resilient cover covering the tactile switch capable of generating pulses simulating the arterial pulse (col. 3, lines 62-67; col. 9, lines 57-72).

The combinations of Abrahamson and Takashina and Abrahamson, Takashina Elwell do not disclose, teach or suggest the use of corrected heart and pulse sounds from recording of living animals. It is the use of recording from living animals (living humans) that permits the sound generator for the heart sounds and the tactile generators for touch to be correlated in such a way that the medical student is exposed to real normal and abnormal heart sound and arterial pulses. Thus, the combinations of Abrahamson and Takashina and Abrahamson, Takashina Elwell do not render obvious the present claims. Applicant, therefore, respectfully requests withdrawal of this rejection.

Response to Arguments

6. The amended drawings have been entered. The objections to the drawings have been withdrawn.

Applicant acknowledges and is glad that the drawings are now up to spec.

7. The amendments to the specification have been entered. The objection to the specification has been withdrawn.

Applicant acknowledges the withdrawal with thanks.

8. The 35 USC 101 rejection of claim 15 has been withdrawn in response to the amendment submitted by the applicant.

Applicant acknowledges the withdrawal with thanks.

9. Applicant's arguments have been fully considered but they are not persuasive.

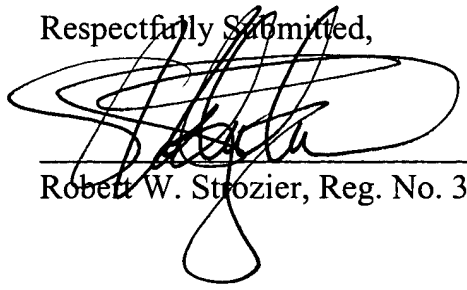
The Examiner contends as follows:

> The applicant argues that Abrahamson does not disclose tactile devices for feeling pulses with one's fingers. This argument is not persuasive. Abrahamson clearly states that the manikin (100) produces life-like responses (col. 3, lines 1-2). Among these life-like responses, Abrahamson presents a long list of responses that are motion responses (col. 3, lines 3-16). Furthermore, Abrahamson discloses that the manikin has a heart beat, carotid and temporal pulse beats, and blood pressure in the same paragraph in which he describes the manikin's physiological characteristics (col. 3, lines 68-74) which are controlled by electro-pneumatic transducers (col. 4, lines 1-2). Lastly, Abrahamson discloses that "a supply of fluid under pressure can be fed to lines controlling movement in different portions of the manikin. The actuation of the articulations of manikin 100 ... are as follows: ... (J) Carotid and temporal pulsing is presented by means of flattened, sealed vinyl tubes" (col. 6, lines 19-23 and col. 8, lines 39+). It is obvious that these signals passed to the pneumatic sensors would produce a physical pulse (i.e., movement) in the manikin, which could inherently be felt by a user. For further support of this, it is also pointed out that Abrahamson clearly states: "In addition to the motion actuation of the manikin 100, other electrical signals produce types of actuation of the manikin not connected with motion" (col. 8, line 53). Abrahamson then goes on to describe that these "other" electrical signals include sound (e.g., of the heart beat) in the paragraph starting at col. 8, line 73. Since the arms are composed of foam covered in vinyl skin, this cover is soft and therefore, pressure created underneath can be detected by a user's finger.
>
> With regard to the applicant's arguments that neither Takashina nor Elwell teach tactile pulse devices, it is noted that these references are not used for the teaching of this feature. Furthermore, since it has been shown that Takashin does indeed disclose this feature, this argument is moot.

Applicant do not believe that any of the references singly or collectively discloses, teaches or suggest the use of a heart sound electronic device and a pulse electronic device that is controlled by a playback unit that uses actually recording of living animals sounds and correlated pulses as the source. Because none of these references singly or collectively disclose such an arrangement, the present claims are allowable over the rejections.

The Commissioner is authorized to charge any additional fees or credit any overpayments to Deposit Account No. 501518.

Respectfully Submitted,



Date: **November 15, 2006**

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